



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/080,834

02/22/2002

Herman Herman

TELE 49074

9589

7590

06/30/2004

Timothy D. Broms  
Pietragallo, Bosick & Gordon  
One Oxford Centre, 38th Floor  
301 Grant Street  
Pittsburgh, PA 15219

EXAMINER

SCHWARTZ, JORDAN MARC

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant(s)

10/080,834

Applicant(s)

HERMAN ET AL.

Examiner

Jordan M. Schwartz

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-96 is/are pending in the application.
- 4a) Of the above claim(s) 59-96 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-24 and 36-57 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 25-29, 31-35 and 58 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/23/02, 8/8/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2873

## **DETAILED ACTION**

### ***Duplicate Claims***

Applicant is advised that should claim 35 be found allowable, claim 58 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 25-29, 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Driscoll Jr., publication number 2001/0010555.

Driscoll Jr., reads on these claims by disclosing the limitations therein including the following: a panoramic photographic apparatus (abstract) comprising a mirror (Figures 2A, 2B, 5, 8A, 9A); means for mounting the mirror on an axis; (Figure 9A, paragraph 0073 re central post "903"); the mirror including a convex reflective surface symmetric about the axis (Figures 2A, 2B,

Art Unit: 2873

5, 8A, 9A); the surface forming a first angle C with respect to a first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror, the first angle C being at least about 0.5 degrees (Figures 2A, 2B, 5, 8A, 9A). Specifically, with respect to the aforementioned limitation, applicant is claiming one of the lines that determine the angle "C" (i.e. "the first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror") but is not claiming the second line that is forming the angle "C". Therefore, based upon the broadness of this limitation, any angle between the claimed first plane and the convex mirror surface can be considered as the angle "C". As shown in the Figures, such as Figure 9A, this angle can be at least about 45 degrees and therefore would be "at least about 0.5 degrees". Furthermore, since applicant is not claiming the second line to determine this angle, then any angle (up to about 45 degrees based upon what is shown in these Figures, such as Figure 9A) can be considered as the angle "C" and therefore the angle "C" can be considered as an angle of about 0.5 degrees to about 20 degrees, or about 1 degree to about 10 degrees, or about 2 degrees to about 8 degrees, or about 5 degrees (Figures 2A, 2B, 5, 8A, 9A). With respect to claim 6, the surface will inherently form a second angle with respect to a second plane at the end of the mirror opposite to the point of intersection as claimed. With respect to claim 7, as shown in the Figures (Figures 2A, 2B, 5, 8A, 9A), such as Figure 9A, this second angle D is approximately 90 degrees and therefore would fall within the claimed range of claim 7. Driscoll Jr. further discloses the convex reflective surface comprising a surface of revolution defined by rotating around the axis a

Art Unit: 2873

parabolic shape or a spherical shape (Figures 2A, 2B, 5, 8A, 9A, paragraphs 0043, 0068, 0073), a camera with a lens with the camera positioned so that the lens is substantially aligned with the axis (Figures 2A, 2B, 5, 8A, 9A, paragraphs 0039 to 0056); the system producing a high resolution viewable panoramic image (paragraphs 0009, 0058 to 0073).

Claims 1-8, 25-29, 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Gianchandani et al, publication number 2002/0126395.

Gianchandani et al, reads on these claims by disclosing the limitations therein including the following: a panoramic photographic apparatus (Figures 1 and 2 paragraph 0032) comprising a mirror (Figures 1 and 2, paragraphs 0032-0033); means for mounting the mirror on an axis; (Figures 1 and 2); the mirror including a convex reflective surface symmetric about the axis (Figures 1 and 2); the surface forming a first angle C with respect to a first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror, the first angle C being at least about 0.5 degrees (Figures 1 and 2). Specifically, with respect to the aforementioned limitation, applicant is claiming one of the lines that determine the angle "C" (i.e. "the first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror") but is not claiming the second line that is forming the angle "C". Therefore, based upon the broadness of this limitation, any angle between the claimed first plane and the convex mirror surface can be considered as the angle "C". As shown in the Figures, such as Figures 1 and 2, this angle can be at least about 30 degrees and therefore would be "at least about 0.5 degrees". Furthermore, since applicant

Art Unit: 2873

is not claiming the second line to determine this angle, then any angle (up to about 30 degrees based upon what is shown in Figures 1 and 2) can be considered as the angle "C" and therefore the angle "C" can be considered as an angle of about 0.5 degrees to about 20 degrees, or about 1 degree to about 10 degrees, or about 2 degrees to about 8 degrees, or about 5 degrees (Figures 1 and 2). With respect to claim 6, the surface will inherently form a second angle with respect to a second plane at the end of the mirror opposite to the point of intersection as claimed. With respect to claim 7, as shown in the Figures (Figures 1 and 2), this second angle D is approximately 60 degrees and therefore would fall within the claimed range of claim 7. Gianchandani et al further discloses the convex reflective surface comprising a surface of revolution defined by rotating around the axis a parabolic shape or a spherical shape (paragraph 0032), a camera with a lens with the camera positioned so that the lens is substantially aligned with the axis (Figures 1-2, paragraphs 0032-0033). It is believed that the system of Figures 1-2 of Gianchandani et al will inherently produce a high resolution viewable image, this being reasonably based upon the similarity in structure between the system of Figures 1-2 of Gianchandani et al and that of the claimed invention.

Claims 1-8, 25-29, 34-35 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Nayar, patent number 6,118,474.

Nayar reads on these claims by disclosing the limitations therein including the following: a panoramic photographic apparatus (Figure 1A, 5-7, 11, column 7, lines 29-42) comprising a mirror (Figure 1A, 5-7, 11, "135" of Figure 1A, "1135" of

Art Unit: 2873

Figure 11, column 7, line 31, column 12, lines 54-57); means for mounting the mirror on an axis; (Figure 1A and 11, column 7, lines 29-33); the mirror including a convex reflective surface symmetric about the axis (Figure 1A, 5-7 and 11 column 7, line 31, column 12, lines 54-61); the surface forming a first angle C with respect to a first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror, the first angle C being at least about 0.5 degrees (Figures 1A, 5-7, 11). Specifically, with respect to the aforementioned limitation, applicant is claiming one of the lines that determine the angle "C" (i.e. "the first plane perpendicular to the axis substantially at a point of intersection between the axis and the mirror") but is not claiming the second line that is forming the angle "C". Therefore, based upon the broadness of this limitation, any angle between the claimed first plane and the convex mirror surface can be considered as the angle "C". As shown in Figures 1A and 5-7, this angle can be at least about 45 degrees and as shown in Figure 11, this angle can be at least about 75 degrees and therefore would be "at least about 0.5 degrees". Furthermore, since applicant is not claiming the second line to determine this angle, then any angle (up to about 45 degrees for Figures 1A, and 5-7 and up to about 75 degrees for Figure 11) can be considered as the angle "C" and therefore the angle "C" can be considered as an angle of about 0.5 degrees to about 20 degrees, or about 1 degree to about 10 degrees, or about 2 degrees to about 8 degrees, or about 5 degrees (Figures 1A, 5-7, 11). With respect to claim 6, the surface will inherently form a second angle with respect to a second plane at the end of the mirror opposite to the point of intersection as

Art Unit: 2873

claimed. With respect to claim 7, as shown in the Figures (Figures 1A, 5-7, 11), this second angle D is a little less than 90 degrees and therefore would fall within the claimed range of claim 7. Nayar further discloses the convex reflective surface comprising a surface of revolution defined by rotating around the axis a parabolic shape or a spherical shape (column 7, line 31, column 12, lines 54-61), a camera with a lens with the camera positioned so that the lens is substantially aligned with the axis (Figures 1A, 7, and 11, column 7, lines 29-41, column 12, line 54 to column 13, line 19). It is believed that the system of Nayar will inherently produce a high resolution viewable image, this being reasonably based upon what is disclosed in Nayar (column 1, line 19 to column 3, line 27) as well as being based upon the similarity in structure between the system of Nayar and that of the claimed invention. Nayar further discloses an additional mirror positioned adjacent the mirror and an additional camera positioned for cooperation with the additional mirror (the Figure 7 embodiment).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll Jr. or Gianchandani in view of Pinzone et al patent number 3,846,809.



Art Unit: 2873

In reference to these claims, Driscoll Jr. and Gianchandani disclose as is set forth above and both further disclose a cylinder for mounting the mirror on an axis with one end of the cylinder attached to the mirror and a second end attached to the camera (Driscoll Jr., Figure 9A, paragraph 0073 and Gianchandani Figures 1-2 and paragraph 0032) but do not specifically disclose the end that is attached to the camera as being attached to a lens of the camera. Pinzone et al teaches that a panoramic photographing apparatus which has a convex reflecting surface being attached to a camera by a cylinder (abstract, Figure 1) can further having the cylinder as being attached to a lens of the camera for the purpose of providing an improved attaching means to the camera (Figure 1, column 2, lines 23-39). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the end of the cylinder of either Driscoll Jr. or Gianchandani which is attached to the camera as being attached to a lens of the camera since Pinzone et al teaches that a panoramic photographing apparatus which has a convex reflecting surface being attached to a camera by a cylinder can further having the cylinder as being attached to a lens of the camera for the purpose of providing an improved attaching means to the camera.

Claims 35 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll Jr. or Gianchandani in view of Nayar.

In reference to these claims, Driscoll Jr. and Gianchandani disclose as is set forth above but do not specifically disclose the system further comprising an additional mirror positioned adjacent the mirror and an additional camera

Art Unit: 2873

positioned for cooperation with the additional mirror. Nayar teaches of using such an additional mirror and camera for the purpose of using two complementary hemispherical scenes to together provide a spherical scene (Figure 7, column 11, line 63 to column 12, line 4). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the hemispherical reflectors of either Driscoll Jr. or Gianchandani as further comprising the claimed additional mirror and camera since Nayar teaches of using such an additional mirror and camera for the purpose of using two complementary hemispherical scenes to together provide a spherical scene.

***Allowable Subject Matter***

Claims 12-24 and 36-57 are allowed.

Claims 9-10 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with reference to claims 9-10 and 12-24 none of the prior art either alone or in combination, disclose or teach of the claimed panoramic photographing apparatus specifically including, as the distinguishing feature in combination with the other limitations, the satisfaction of the claimed equations. Specifically, with reference to claims 30 and 36-57 none of the prior art either alone or in

Art Unit: 2873

combination, disclose or teach of the claimed system for providing enhanced panoramic images specifically including, as the distinguishing feature in combination with the other limitations, the satisfaction of the claimed equations.

### ***Examiner's Comments***

For applicant's information, the 112 first and second paragraph rejections set forth in the prior office action have been withdrawn in light of applicant's amendment of the claims.

Sogabe et al patent number 6,738,569, Chahl et al patent number 5,790,181, Geng publication number 2001/0015751, and Kumata patent number 6,704,148, are being cited herein to show other references that would at least read on a number of the above rejected claims, however, such rejections would have been repetitive.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

Art Unit: 2873

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (571) 272-2337. The examiner can normally be reached on Monday to Friday (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jordan M. Schwartz  
Primary Examiner  
Art Unit 2873  
June 24, 2004